

I claim:

1. A cellular pleated shade member having a plurality of cells, at least one of the cells comprising:

a strip of shade material folded lengthwise to form an upper cell wall and a lower cell wall extending from a fold, each upper and lower cell wall having a free edge and a folded edge merging with the adjacent wall of the strip at said fold;

said upper cell wall and lower cell wall of said strip connected adjacent their respective free edges and forming a fin at said connection;

wherein said upper cell wall is attached to a lower cell wall of a first adjacent cell at an upper interconnection zone, said upper interconnection zone being located on said upper cell wall between said fin and said fold; and

wherein said lower cell wall is attached to an upper cell wall of a second adjacent cell at a lower interconnection zone, said lower interconnection zone being located on said lower cell wall between said fin and said fold.

2. The cellular pleated shade according to claim 1, wherein said upper cell wall

includes a centerline midway between said free edges and said fold and said upper cell wall is attached to said first adjacent cell along said centerline.

3. The cellular pleated shade according to claim 1, wherein said upper cell wall

includes a centerline midway between said free edges and said fold and said upper cell wall is attached to said first adjacent cell between said centerline and said fold.

4. The cellular pleated shade according to claim 1, wherein said upper cell wall includes a centerline midway between said free edges and said fold and said upper cell wall is attached to said first adjacent cell between said centerline and said fin.

5. The cellular pleated shade of claim 1, wherein said upper interconnection zone has two side terminations, said side terminations being on opposite sides of said longitudinal centerline of said upper cell wall.

6. The cellular pleated shade of claim 1, wherein said free edges of said upper cell wall and lower cell wall are connected by sonic welding.

7. The cellular pleated shade of claim 1, wherein said free edges of said upper cell wall and lower cell wall are connected by an adhesive glue.

8. The cellular pleated shade of claim 5, further comprising a pullcord disposed through said plurality of cells and through said upper and lower interconnection zones.

9. The cellular pleated shade of claim 2, wherein said lower cell wall is attached to said second adjacent cell by means a glue bead.

10. The cellular pleated shade of claim 2, wherein said lower cell wall is attached to said second adjacent cell by means of an adhesive strip.

11. ~~A cellular shade, having a plurality of interconnected fabric cells for covering a window, at least one of the cells comprising:~~

~~a strip of nonwoven fabric shade material folded at a tip to form an upper cell wall and a lower cell wall, said upper cell wall extending from said tip and having a rear edge and said lower cell wall extending from said tip and having a rear edge;~~

a fin, wherein said fin is formed by joining a portion of said upper cell wall adjacent said rear edge of said upper cell wall with a portion of said lower cell wall adjacent said rear edge of said lower cell wall;

means for attaching said upper cell wall of said cell to a lower cell wall of a first adjacent cell; and

means for attaching said lower cell wall of said cell to an upper cell wall of a second adjacent cell.

12. A cellular shade for covering a window, said shade comprising:

a plurality of interconnected fabric cells, wherein each cell has:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said crease and having a rear edge, said upper cell wall having a longitudinal centerline equidistant along said upper cell wall from said crease and from said rear edge of said upper cell wall;

a lower cell wall extending from said crease and having a rear edge, said lower cell wall and said upper cell wall being substantially equal in length;

a fin on said rear side, wherein said fin is formed by joining a portion of said upper cell wall adjacent said rear edge of said upper cell wall with a portion of said lower cell wall adjacent said rear edge of said lower cell wall; and

material located on at least one of said upper cell wall and said lower cell wall for attaching said each cell of said plurality of cells to an adjacent cell of said plurality of cells;

wherein substantially all cells of said plurality of cells have for each cell an interconnection zone on said upper cell wall, said interconnection zone defined by said material when said material is located on said upper cell wall; and wherein said interconnection zone has an interconnection centerline.

13. The cellular shade of claim 12, wherein the location of said interconnection centerline is forward of said longitudinal centerline.

14. The cellular shade of claim 13, wherein said material is a high temperature, hot-melt thermoplastic polyester UV-stabilized adhesive.

15. The cellular shade of claim 13, wherein said material is an adhesive strip.

16. The cellular shade of claim 13, wherein the fabric of said interconnected fabric cells is a nonwoven fabric.

17. The cellular shade of claim 13, wherein the fabric of said interconnected fabric cells is polyester.

18. A cellular shade for covering a window, said shade comprising:

a plurality of interconnected fabric cells, wherein substantially all cells within said plurality of cells have for each cell:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said tip and having a rear edge, said upper cell wall having an upper surface and an interior surface and having a longitudinal centerline equidistant along said upper cell wall from said tip and from said rear edge of said upper cell wall,

a lower cell wall extending from said tip and having a rear edge, said lower cell wall having a lower surface and an interior surface, said lower cell wall and said upper cell wall being substantially equal in length;

a fin on said rear side, wherein said fin is formed by joining a portion of said upper cell wall adjacent said rear edge of said upper cell wall with a portion of said lower cell wall adjacent said rear edge of said lower cell wall;

an adhesive on said upper cell wall, said adhesive for connecting said each cell to an adjacent cell of said plurality of cells; and

an interconnection zone defined by said adhesive,

wherein said interconnection zone has an interconnection centerline and said ~~interconnection centerline is forward of said longitudinal centerline;~~

wherein when said cellular shade is extended, a portion of the interior surface of said upper cell wall and a portion of the interior surface of said lower cell wall define a six-sided polygon, said six-sided polygon having an upper rear side, an

upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side; and

wherein said fin, said upper middle side and said lower middle side are substantially in parallel arrangement.

19. The cellular shade of claim 18, wherein an interior angle defined by said upper front side and said lower front side is approximately equal to an interior angle defined by said upper rear side and said lower rear side.

20. The cellular shade of claim 19, wherein said adhesive includes a plurality of glue beads.

21. The cellular shade of claim 20, wherein said glue beads extend longitudinally along said upper surface of said upper cell wall of said cell.

22. The cellular shade of claim 21, wherein said portion of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said portion of said lower cell wall adjacent said rear edge of said lower cell wall by glue.

23. The cellular shade of claim 21, wherein said portion of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said portion of said lower cell wall adjacent said rear edge of said lower cell wall by an adhesive strip.

24. The cellular shade of claim 21, wherein said portion of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said portion of said lower cell wall adjacent said rear edge of said lower cell wall by sonic welding.

25. A cellular shade for covering a window, said shade comprising:

a plurality of interconnected fabric cells, wherein each cell within said plurality of cells is comprised of a nonwoven fabric and has:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said tip and having a rear edge, said upper cell wall having an upper surface and an interior surface and having a longitudinal centerline equidistant along said upper cell wall from said tip and from said rear edge of said upper cell wall;

a lower cell wall extending from said tip and having a rear edge, said lower cell wall having a lower surface and an interior surface, said lower cell wall and said upper cell wall being substantially equal in length; and

a fin on said rear side, wherein said fin is formed by joining a first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall with a first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall;

a high temperature adhesive on substantially all cells of said plurality of cells, said high temperature adhesive for connecting each cell of said substantially all cells to an adjacent cell of said plurality of cells;

an upper rail assembly, said upper rail assembly attached to an uppermost cell of said plurality of cells;

a lower rail assembly, said lower rail assembly attached to a lowermost cell of said plurality of cells; and

a pullcord, said pullcord for raising and lowering one of said upper and lower rail assembly in relation to the other of said upper and lower rail assembly.

26. The cellular shade of claim 25, wherein said high temperature adhesive extends longitudinally along said upper surface of said upper cell wall of said cell.

27. The cellular shade of claim 26, wherein said first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall by a high temperature adhesive.

28. The cellular shade of claim 27, wherein when said cellular shade is extended, a second portion of said interior surface of said upper cell wall and a second portion of said interior surface of said lower cell wall define a six-sided polygon, said six-sided polygon having an upper rear side, an upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side.

29. The cellular shade of claim 28, wherein said fin, said upper middle side and said lower middle side are substantially in parallel arrangement.

30. The cellular shade of claim 28, wherein an interior angle defined by said upper front side and said lower front side is less than an interior angle defined by said upper rear side and said lower rear side.

31. The cellular shade of claim 28, wherein an interior angle defined by said upper front side and said lower front side is approximately equal to an interior angle defined by said upper rear side and said lower rear side.

32. The cellular shade of claim 29, wherein said upper middle side is approximately equal in length to said lower middle side.

33. The cellular shade of claim 32, wherein said high temperature adhesive on substantially all cells of said plurality of cells is on said upper surface of said upper cell wall of each cell of said substantially all cells and defines an interconnection zone for each cell of said substantially all cells, said interconnection zone having an interconnection centerline, and wherein said interconnection centerline is located forward of said longitudinal centerline on said upper surface.

34. A cellular shade for covering a window, said shade comprising:

a plurality of interconnected nonwoven fabric cells, wherein substantially all cells within said plurality of cells have for each cell:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said tip and having a rear edge, said upper cell wall having an upper surface and an interior surface and having a longitudinal centerline equidistant along said upper cell wall from said tip and from said rear edge of said upper cell wall;

a lower cell wall extending from said tip and having a rear edge, said lower cell wall having a lower surface and an interior surface; a fin on said rear side, wherein said fin is formed by joining a first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall with a first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall; and an interconnection zone on said upper surface, said interconnection zone having an interconnection centerline;

an adhesive on substantially all cells of said plurality of cells, said adhesive for connecting each cell of said substantially all cells to an adjacent cell of said plurality of cells, wherein said adhesive includes a first high temperature glue bead on said upper surface of said upper cell wall and a second high temperature glue bead on said upper surface of said upper cell wall, said first and said second high temperature glue beads being on opposite sides of said longitudinal center line of said upper cell wall, said first and said second high temperature glue beads extending longitudinally along said upper surface of said upper cell wall;

an upper rail assembly, said upper rail assembly attached to an uppermost cell of said plurality of cells;

a lower rail assembly, said lower rail assembly attached to a lowermost cell of said plurality of cells;

a pullcord, said pullcord for raising and lowering said one of said upper and lower rail assembly in relation to the other of said upper and lower rail assembly;

wherein when said cellular shade is extended:

a second portion of said interior surface of said upper cell wall and a second portion of said interior surface of said lower cell wall define a six-sided polygon, said six-sided polygon having an upper rear side, an upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side;

the length of said upper middle side and said lower middle side are of approximately equal lengths, the length of said upper middle side being less than the length of either of said upper rear side and said upper front side, and the length of said lower middle side being less than the length of either of said lower rear side and said lower front side; and

said fin, said upper middle side and said lower middle side are in substantially parallel arrangement; and

wherein said interconnection centerline is forward of said longitudinal centerline on said upper surface.

35. A cellular pleated shade member having a plurality of interconnected cells, at least one of the cells comprising:

a strip of shade material folded lengthwise to form an upper cell wall and a lower cell wall extending from a fold, each upper and lower cell wall having a free edge and a folded edge;

said upper cell wall and lower cell wall of said strip interconnected adjacent their respective free edges; and

said upper cell wall and said lower cell wall each having at least one attachment zone on each side of a longitudinal center line of each said cell wall for connecting said cell to an adjacent cell.

z 36. The cellular pleated shade of claim 35, wherein one of said upper cell wall and lower cell wall includes two attachment zones that extend longitudinally thereon.

z 37. The cellular pleated shade of claim 35, wherein said free edges of said upper cell wall and lower cell wall are interconnected by sonic welding.

u 38. The cellular pleated shade of claim 35, wherein said free edges of said upper cell wall and lower cell wall are interconnected by an adhesive glue.

s 39. The cellular pleated shade of claim 35, wherein said free edges of said upper cell wall and lower cell wall are interconnected by an adhesive strip.

u 40. The cellular pleated shade of claim 36, further including a pullcord disposed through the pleats of said cellular pleated shade between said two attachment zones.

z 41. The cellular pleated shade of claim 35, wherein said cell is connected to said adjacent cell at said attachment zones.

8 42. The cellular pleated shade of claim 41, wherein a glue bead connects said cell to said adjacent cell at each said attachment zone.

9 43. The cellular pleated shade of claim 41, wherein an adhesive strip connects said cell to said adjacent cell at each said attachment zone.

10 44. A cellular shade for covering a window, said shade comprising:

a plurality of longitudinally extending, substantially parallel interconnected fabric cells, wherein substantially all cells within said plurality of cells have for each cell:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said crease and having a rear edge, said upper cell wall having a longitudinal center line equidistant along said upper cell wall from said crease and from said rear edge of said upper cell wall;

a lower cell wall extending from said crease and having a rear edge, said lower cell wall and said upper cell wall being substantially equal in length; and

a fin on said rear side, wherein said fin is formed by joining a portion of said upper cell wall adjacent said rear edge of said upper cell wall with a portion of said lower cell wall adjacent said rear edge of said lower cell wall; and

material located on at least one of said upper cell wall and said lower cell wall for attaching each cell of said plurality of cells to an adjacent cell of said plurality of cells.

11 45. The cellular shade of claim 44, wherein said material for attaching includes an adhesive strip.

12 46. The cellular shade of claim 45, wherein said adhesive strip passes through said longitudinal center line of said upper cell wall.

13 47. The cellular shade of claim 44, wherein said material for attaching includes at least one glue bead.

14 48. The cellular shade of claim 47, wherein said at least one glue bead passes through said longitudinal center line of said upper cell wall.

15 49. The cellular shade of claim 44, wherein said material for attaching includes a glue bead on each side of said longitudinal center line of said upper cell wall.

16 50. The cellular shade of claim 49, wherein said glue beads are approximately equidistant along said upper cell wall from said longitudinal center line of said upper cell wall.

17 51. The cellular shade of claim 44, wherein said portion of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said portion of said lower cell wall adjacent said rear edge of said lower cell wall by a glue bead.

18 52. The cellular shade of claim 44, wherein said portion of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said portion of said lower cell wall adjacent said rear edge of said lower cell wall by an adhesive strip.

1^ 53. The cellular shade of claim 44, wherein said portion of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said portion of said lower cell wall adjacent said rear edge of said lower cell wall by sonic welding.

2^ 54. The cellular shade of claim 44, wherein when said cellular shade is extended, the interior surfaces of said upper cell wall and said lower cell wall define a six-sided polygon, said six-sided polygon having an upper rear side, an upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side.

2^ 55. The cellular shade of claim 54, wherein said fin, said upper middle side and said lower middle side are substantially in parallel arrangement.

2^ 56. The cellular shade of claim 54, wherein an interior angle defined by said upper front side and said lower front side is less than an interior angle defined by said upper rear side and said lower rear side.

2^ 57. The cellular shade of claim 54, wherein said upper middle side is approximately equal in length to said lower middle side.

58. A cellular shade for covering a window, said shade comprising:

a plurality of longitudinally extending interconnected fabric cells, wherein each cell within said plurality of cells has:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said tip and having a rear edge, said upper cell wall having an upper surface and an interior surface and having

a longitudinal center line equidistant along said upper cell wall from said tip and from said rear edge of said upper cell wall;

a lower cell wall extending from said tip and having a rear edge, said lower cell wall having a lower surface and an interior surface, said lower cell wall and said upper cell wall being substantially equal in length; and

a fin on said rear side, wherein said fin is formed by joining a first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall with a first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall;

an adhesive on substantially all cells of said plurality of cells, said adhesive for connecting each cell of said substantially all cells to an adjacent cell of said plurality of cells;

an upper rail assembly, said upper rail assembly attached to an uppermost cell of said plurality of cells;

a lower rail assembly, said lower rail assembly attached to a lowermost cell of said plurality of cells; and

a pullcord, said pullcord for raising and lowering one of said upper and lower rail assembly in relation to the other of said upper and lower rail assembly.

59. The cellular shade of claim 58, wherein said adhesive includes an adhesive strip on said upper surface of said upper wall.

60. The cellular shade claim 59, wherein said adhesive strip passes through said longitudinal center line of said upper cell wall.

61. The cellular shade of claim 58, wherein said adhesive includes an adhesive strip on said lower surface of said lower cell wall.

62. The cellular shade of claim 58, wherein said adhesive includes a glue bead on said upper surface of said upper cell wall.

63. The cellular shade of claim 62, wherein said glue bead passes through said longitudinal center line of said upper cell wall.

64. The cellular shade of claim 58, wherein said adhesive includes a first glue bead on said upper surface of said upper cell wall and a second glue bead on said upper surface of said upper cell wall, said first and said second glue beads being on opposite sides of said longitudinal center line of said upper cell wall.

65. The cellular shade of claim 64, wherein said first and said second glue beads extend longitudinally along said upper surface of said upper cell wall of said cell.

66. The cellular shade of claim 65, wherein said first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall by an adhesive.

67. The cellular shade of claim 66, wherein when said cellular shade is extended, a second portion of said interior surface of said upper cell wall and a second portion of said interior surface of said lower cell wall define a six-sided polygon, said six-sided polygon having an upper

rear side, an upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side.

68. The cellular shade of claim 67, wherein said fin, said upper middle side and said lower middle side are substantially in parallel arrangement.

69. The cellular shade of claim 67, wherein an interior angle defined by said upper front side and said lower front side is less than an interior angle defined by said upper rear side and said lower rear side.

70. The cellular shade of claim 69, wherein said first and said second glue beads are approximately equidistant along said upper cell wall from said longitudinal center line of said upper cell wall.

71. The cellular shade of claim 70, wherein said first glue bead is proximate to a front end of said upper middle side and said second glue bead is proximate to a rear end of said upper middle side.

72. The cellular shade of claim 71, wherein said upper middle side is approximately equal in length to said lower middle side.

73. The cellular shade of claim 58, wherein said adhesive includes a first glue bead on said lower surface of said lower cell wall and a second glue bead on said lower surface of said lower cell wall.

74. The cellular shade of claim 73, wherein when said cellular shade is extended, a second portion of said interior surface of said upper cell wall and a second portion of said interior surface of said lower cell wall define a six-sided polygon, said six-sided polygon having an upper

rear side, an upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side.

75. The cellular shade of claim 74, wherein said fin, said upper middle side and said lower middle side are substantially in parallel arrangement.

76. The cellular shade of claim 73, wherein an interior angle defined by said upper front side and said lower front side is less than an interior angle defined by said upper rear side and said lower rear side.

77. The cellular shade of claim 73, wherein said upper middle side is approximately equal in length to said lower middle side.

78. The cellular shade of claim 77, wherein said first glue bead is proximate to a front end of said lower middle side and said second glue beads is proximate to a rear end of said lower middle side.

79. The cellular shade of claim 78, wherein said first and said second glue beads extend longitudinally along said lower surface of said lower cell wall of said cell.

80. The cellular shade of claim 79 wherein said first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall is joined with said first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall by an adhesive.

81. A cellular shade for covering a window, said shade comprising:

a plurality of longitudinally extending interconnected fabric cells, wherein substantially all cells within said plurality of cells have for each cell:

a front side and a rear side;

a crease forming a tip on said front side;

an upper cell wall extending from said tip and having a rear edge, said upper cell wall having an upper surface and an interior surface and having a longitudinal center line equidistant along said upper cell wall from said tip and from said rear edge of said upper cell wall;

a lower cell wall extending from said tip and having a rear edge, said lower cell wall having a lower surface and an interior surface; and

a fin on said rear side, wherein said fin is formed by joining a first portion of said interior surface of said upper cell wall adjacent said rear edge of said upper cell wall with a first portion of said interior surface of said lower cell wall adjacent said rear edge of said lower cell wall;

an adhesive on substantially all cells of said plurality of cells, said adhesive for connecting each cell of said substantially all cells to an adjacent cell of said plurality of cells, wherein said adhesive includes a first glue bead on said upper surface of said upper cell wall and a second glue bead on said upper surface of said upper cell wall, said first and said second glue beads being on opposite sides of said longitudinal center line of said upper cell wall, said first and said second glue beads extending longitudinally along said upper surface of said upper cell wall;

an upper rail assembly, said upper rail assembly attached to an uppermost cell of said plurality of cells;

a lower rail assembly, said lower rail assembly attached to a lowermost cell of said plurality of cells; and

a pullcord, said pullcord for raising and lowering said one of said upper and lower a lower rail assembly in relation to the other of said upper and lower rail assembly;

wherein when said cellular shade is extended,

a second portion of said interior surface of said upper cell wall and a second portion of said interior surface of said lower cell wall define a six-sided polygon, said six-sided polygon having an upper rear side, an upper middle side, an upper front side, a lower front side, a lower middle side, and a lower rear side;

the length of said upper middle side and said lower middle side are of approximately equal lengths, the length of said upper middle side being less than the length of either of said upper rear side and said upper front side, and the length of said lower middle side being less than the length of either of said lower rear side and said lower front side; and

said fin, said upper middle side and said lower middle side are in substantially parallel arrangement.